

Application No.: 10/539718
Docket No.: CH2883USPCT

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Amendments to Claims

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Claims 1-11 canceled.

12. (Currently amended) In an improved process for purifying a crude titanium tetrachloride chlorinator discharge from the carbochlorination of titanium-containing materials comprising titanium tetrachloride, aluminum chloride and vanadium chlorides, by mixing a vanadium passivating agent selected from the group consisting of organic oil into the chlorinator discharge to form a passivated discharge comprising one or more easy-to-separate vanadium-containing compounds, wherein the improvement comprises:

(a) detecting, in the passivated discharge, titanium oxychloride formed therein, and, if titanium oxychloride is absent, mixing an aluminum passivating agent into the passivated discharge in an amount sufficient to passivate the aluminum chloride and react with the titanium tetrachloride to form titanium oxychloride, the aluminum passivating agent being selected from the group consisting of water, water containing solutions, water containing mixtures, and carboxylic acid to form one or more easy-to-separate aluminum-containing compounds in the passivated discharge; and

(eb) separating from the passivated discharge the easy-to-separate vanadium- and aluminum-containing compounds to form a purified titanium tetrachloride.

13. (Previously presented) The process of Claim 12 wherein the separation process is selected from the group consisting of flashing distillation, multi-stage distillation, a solid-liquid separation process, filtration, and centrifugation.

14. (Previously presented) The process of Claim 12 wherein the vanadium passivating agent is mixed into the chlorinator discharge in an amount sufficient to reduce the concentration of, but not eliminate, the vanadium chlorides.

15. (Previously presented) The process of Claim 12 wherein the aluminum passivating agent is comprised of a purge-containing product from the passivation of vanadium chlorides taken from a process step following the separation step.

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16. (Previously presented) The process of Claim 12 wherein the mixing of the vanadium passivating agent and the aluminum passivating agent are controlled by a process control method.

17. (Previously presented) The process of Claim 12 wherein the vanadium passivating agent is a petroleum oil, an animal fat, a vegetable oil or a combination thereof

18. (Previously presented) The process of Claim 12 wherein the vanadium passivating agent is a hydrogenated naphthenic oil.

19. (Currently amended) The process of Claim 14 further comprising after step (ea) mixing the vanadium passivating agent into the passivated discharge in a second amount sufficient to eliminate the vanadium chlorides.